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## SANITATION AND VENTILATION OF FACTORIES<sup>1</sup>

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**B**Y "sanitation of factories" is meant the sum of measures undertaken for the prevention of disease and the promotion of health of operatives in factories. By "ventilation" was formerly meant simply the introduction of street air into the room. This narrow conception of ventilation is at present justly being discarded, and the meaning of ventilation broadened so as to include the correlated subjects of light, illumination, heating, humidity, quantity of air, quality of air, *etc.*, all of which bear a close relation to the question of the purity of air within enclosed spaces. In this broader conception of ventilation, an extensive experience of twenty-six years as an inspector and an exhaustive study of the subject lead me to assert that the ventilation of workshops is a woefully neglected subject.

Within the last year an investigation of 1800 shops in the cloak and suit industry, made under my direction, has disclosed the fact that but 3.83 % of the shops had any special means of ventilation. The rest of the shops relied solely upon the common window ventilation, which is defective even in summer when windows are open; and inadequate in winter when windows are naturally closed.

Another fact which has been disclosed during this investigation was that the enlarging of the shop in floor space, as well as in cubic space, is not necessarily followed by improved ventilation, the movement of air being much slower in large loft shops with closed windows than in smaller shops with windows not too far from the opposite walls and doors.

In the investigation which is being carried on by the New

<sup>1</sup> Read in discussion at the meeting of the Academy of Political Science, November 11, 1911.

York State Factory Commission, nearly 3,000 inspections have already been made, and although complete data are not yet at hand, we have some figures which already show that the percentage of ventilated shops does not exceed 4%, as in the cloak and suit trade. Out of 357 printing shops inspected only 25 had a system of mechanical ventilation, and only 50 had special devices to improve natural ventilation. Out of 151 tobacco manufacturing concerns, only 16 had a system of mechanical ventilation, and only 38 had any special device to improve ventilation. These are industries where dusts, poisons and fumes are generated, and where the necessity for special ventilation is very urgent.

In a large sugar refinery which I recently inspected I found the sanitary conditions as to care, comforts and toilet accommodations much lower than in any ordinary garment shop which I had inspected during the last year. On several floors of this huge nine-story double building, I found the air so filled with charcoal dust that it was impossible to see 4 feet away, and impossible to breathe longer than a few minutes. On one of the floors of this refinery I found a dozen persons, barefooted, and naked except for a loin cloth, in a temperature of 95° F., with a relative humidity of 96, almost reaching saturation, rinsing and washing dirty filter-bags in half a dozen vats, the water in which was at 130° F. The whole place resembled nothing so much as a scene from Dante's Inferno.

What are the remedies? It is impossible to discuss them at length. I shall but name them. They are:

1. Standardization.
2. Legislation.
3. Education and coöperation.

1. We need to standardize ventilation, for as yet we do not know what it really is, and have no proper standards for it.

2. We need drastic legislation in relation to ventilation. It is my belief that the state has a right to demand from the builder who shuts out the air of the street in building his house that he make provision for the introduction of the air into his building. It is my belief that the state has a right to compel the employer not only to pay wages to the workers to buy food,

but also to provide for his workers air, which is more necessary than food.

3. We need education and coöperation. It is my belief that no amount of legislation, however drastically enforced, will be of any avail unless the employers as well as the employes are educated to realize the importance of air to their business and to the bodily efficiency of their workers, and unless there is a close coöperation between progressive capitalists and enlightened labor organizations.